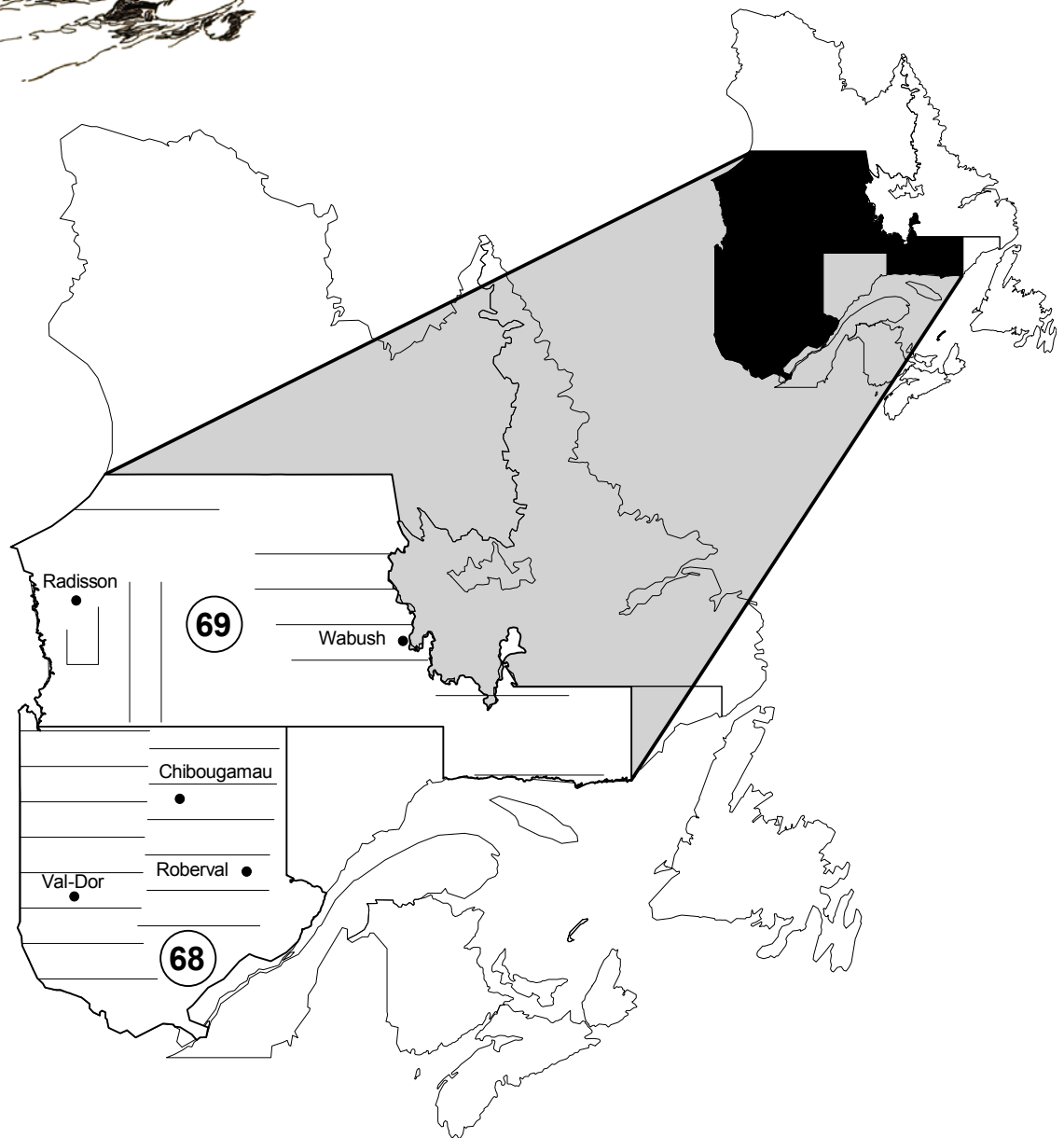


CENTRAL QUEBEC

Waterfowl Breeding Population Survey

2002



The data presented in this report are preliminary. Final estimates are available from the U.S. Fish and Wildlife Service, Office of Migratory Bird Management, Patuxent Wildlife Research Center, Laurel, Maryland 20708-4016.

2002 Waterfowl Breeding Pair Population Survey Central and Northern Quebec

May 2002

Strata Surveyed 68 & 69

**Survey Conducted and Data Supplied by
United States Fish & Wildlife Service**

Aerial Crews

Pilot/Observer James S. Wortham, USFWS
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Abstract

Initiated in conjunction with the Black Duck Joint Venture (NAWMP), 2002 marks the third year that Strata 68 & 69 will be included in the operational Aerial Waterfowl Breeding Ground Population and Habitat Survey in North America. Due to recent changes in the survey design, and lack of historical data, direct comparisons of these estimates to previous years are complex and are discouraged. However, as compared to 2001, data does indicate significant increases (34.8 %) in black ducks across the region, slight decreases (6.6 %) in mallard numbers, and a 20.0 % decrease in numbers of Canada geese.

Methods

The procedures followed in conducting this survey are detailed in the Standard Operating Procedures for Aerial Waterfowl Breeding Ground Population and Habitat Survey, Section III, revised April 1987, April 2000. The pilot/observer was experienced in surveying these strata and have flown these areas four years. In 1997, the northern portions of Stratum 68 were separated and expanded to form Stratum 69. However, these areas were not flown during the 1997 survey season due to forest fires. Stratum 69 was again expanded in 2000, and survey transects were added increasing the overall sampling effort within this stratum.

A Cessna U206F fixed-wing aircraft equipped with amphibious floats was used for the survey. Visibility corrections were obtained using pooled data from an ongoing helicopter visibility bias correction study being conducted in eastern Canada. Calculated correction factors are applied across the eastern survey area.

Beginning in 1998, waterfowl and habitat data were collected using an aerial onboard digital recording system designed to attribute each waterfowl observation with a respective location recorded as a latitude/longitude coordinate. Each data point (observation) is then logged along with the sample details, i.e. strata, transect, and segment, time, climatic conditions, and location.

Habitat Descriptions

Stratum 68: Stratum 68 lies east of the Ontario border, north of the Ottawa River, west of the St. Lawrence River, and south of a line extending eastward from the southern tip of the James Bay. Topography ranges from rolling hills in the southeast to more severe terrain in the northeast, and gentle slopes and flat areas near the James Bay. This boreal shield ecosystem is characterized predominately with hardwoods with the only significant development resulting from timber and mining activities. Wetlands consist of rivers and smaller drainages, numerous lakes and beaver ponds, timbered rocky marshes, and bogs.

Stratum 69: Stratum 69 lies east of the James and Hudson Bays, south of the 56th parallel, north of Sept-Isles and the north shore of the St. Lawrence Gulf, and west of Labrador. Topography in this region of the Nearctic ranges from rolling to severe, and is characterized by rocky outcroppings. Development consists of reservoirs constructed for hydroelectric generation, and some mineral and timber extraction. Wetlands consist of rivers and other drainages, man-made reservoirs, glaciated lakes and beaver ponds, some vegetated marshes and bogs.

Table 1. Survey design for central Quebec

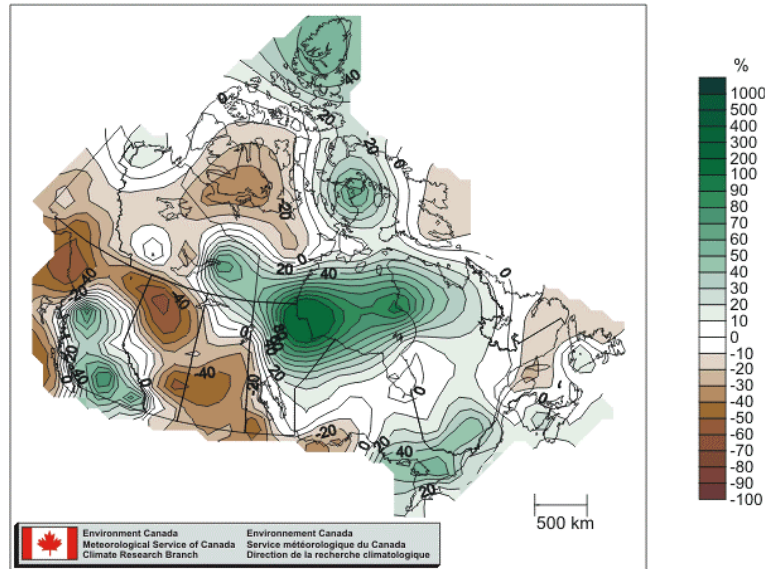
Survey Design	68	69
Square miles in stratum	140,307.0	190,213.0
Linear miles as designed	2,520	1,800
Square miles as designed	630.0	450.0
Linear miles in sample	2,520	1,800
Square miles in sample	630.0	450.0
Number of segments in sample	140	100
Expansion Factor	222.71	422.70

Weather and Habitat

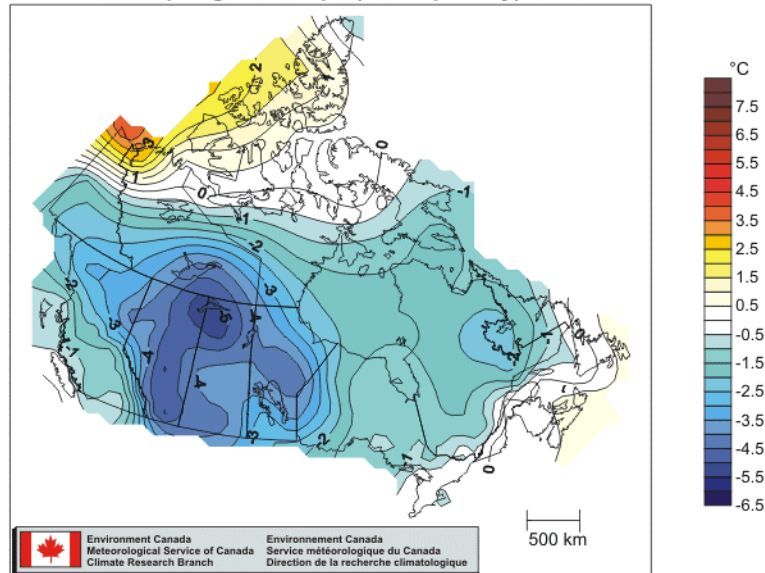
During winter 2001/2002 temperatures were 2.5 to 3.5 °C above normal in the southern and central portions of Quebec, and only slightly above normal in the northern peninsula. Precipitation was slightly below normal in areas along the St. Lawrence and the northern shore, but near normal precipitation was received across the remainder of Quebec.

Spring brought 20% to 40% above average precipitation for southern Quebec and the Laurentides along with warm temperatures. However, winter returned with sub-freezing temperatures and snow persisting from mid to late April. Central and northern portions of Quebec received below average temperatures and normal precipitation amounts during spring with the exception of the Cote-Nord or northern shore areas which remained drier than normal during the period.

**PRECIPITATION DEPARTURES FROM NORMAL
ANOMALIES DES PRECIPITATIONS PAR RAPPORT A LA NORMALE
Spring/Printemps (Mar, Apr, May) 2002**



**TEMPERATURE DEPARTURES FROM NORMAL
ANOMALIES DE LA TEMPERATURE PAR RAPPORT A LA NORMALE
Spring/Printemps (Mar, Apr, May) 2002**



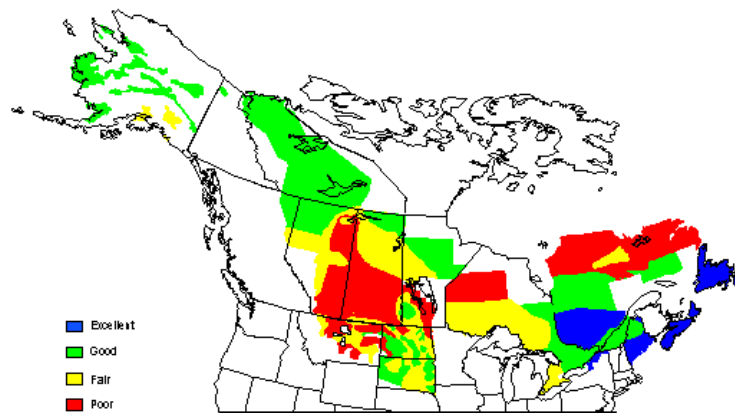


Figure 1. Preliminary breeding waterfowl habitat conditions during May and June 2002, as judged by USFWS Service Flyway Biologists.

The timing of spring conditions were near average or slightly later across southern Quebec, and the above average precipitation in the southern portions of Stratum 68 resulted in excellent habitat conditions for nesting waterfowl in this area. North of Matagami to the southern tip of James Bay habitat conditions were drier than those areas to the south but were judged to be “good” for nesting waterfowl. Near Chibougamau and westward water levels remained satisfactory, but frozen conditions persisted later than normal in lakes and marshes higher than 1500’ in elevation.

Northward from the 51st parallel winter conditions persisted throughout May. Survey operations in Stratum 69 were delayed until early June when lakes and marshes began to thaw, however habitat conditions for nesting waterfowl were assessed as poor due to the relatively late access afforded the birds as a result of the frozen conditions. An exception were those marshes south of Radisson and west of Lake Mistassini which became ice-free earlier than surrounding areas and offered “good” habitat conditions.

Seasonal precipitation models forecast above average rainfall for June, July, and August across the entirety of Strata 68 & 69. Forecast models also predict above normal temperatures during the summer months for southern and central Quebec, and near normal temperatures for northern Quebec and the Ungava peninsula.

Breeding Population Estimates

Although the eastern Canada portions of the survey are included in the operational North American survey, only limited assumptions can be made about waterfowl populations at this point. During 2000, survey effort was increased by adding several transects and expanding the northern boundary of stratum 69. However, 2002 marks only

four years of data obtained within this stratum. Several more years of data will be needed before meaningful comparisons can be made.

Information on population estimates can be seen in the following tables. Notable outcomes include an increase in black ducks from last year of 42.2 % and 27.3 % for strata 68 and 69 respectively. This contributed to an overall crew area increase in black ducks of 34.8 % from 2001 which exceeds by 35.2 % a calculated 6-year mean of 156,550 birds (1996 – 2001). Numbers of mallards decreased slightly in both Stratum 68 and 69. Canada geese in stratum 68 decreased 38.6% from 2001 offsetting the significant increases experienced that year. Conversely, Canada geese increased 34.5 % within stratum 69. This fluctuation resulted in an overall crew area decrease of 20 % from last year and down 7.4 % from the 1996-2001 mean.

Table 1. Status of waterfowl breeding population estimates (thousands, adjusted for visibility bias) by species and stratum.

Species/Ponds	Stratum		2002 Total	2001 Total	% Change From 2001
	68	69			
Ducks					
Dabblers					
Mallard	53.4	4.8	58.2	62.3	-6.6%
Am. black duck	111.8	99.9	211.7	157.1	34.8%
Gadwall	9.5	2.6	12.0	12.3	-1.8%
Am. wigeon	34.3	0.0	34.3	5.1	570.2%
Am. green-winged teal	33.0	11.2	44.2	32.1	37.5%
Blue-winged teal	23.0	0.0	23.0	4.6	396.5%
N. shoveler	0.0	0.0	0.0	0.0	--
N. pintail	0.0	2.2	2.2	4.5	-50.0%
Subtotal	265.0	120.7	385.6	278.0	38.7%
Divers					
Redhead	0.0	0.0	0.0	0.0	--
Canvasback	0.0	0.0	0.0	0.0	--
Scaups	72.3	41.8	114.2	87.8	30.0%
Ring-necked duck	29.8	16.7	46.5	113.5	-59.0%
Goldeneyes	129.5	590.4	719.9	802.4	-10.3%
Bufflehead	22.6	3.7	26.4	24.8	6.4%
Ruddy Duck	0.0	0.0	0.0	5.3	-100.0%
Subtotal	254.2	652.7	906.9	1033.8	-12.3%
Miscellaneous					
Long-tailed duck	0.0	43.7	43.7	36.2	20.9%
Eiders	0.0	0.0	0.0	0.0	--
Scoters	36.2	230.5	266.6	167.1	59.6%
Mergansers	255.4	172.3	427.7	254.6	68.0%
Subtotal	291.6	446.5	738.1	457.8	61.2%
Total Ducks	810.8	1219.9	2030.6	1769.6	14.8%
Canada Goose	180.0	135.0	315.0	393.7	-20.0%
Am. coot	0.0	0.0	0.0	2.1	-100.0%

Appendix 1. Long-term trend in adjusted waterfowl breeding population estimates (thousands). *

Species/Ponds	1996	1997	1998	1999	2000	2001	2002
Ducks							
Dabblers							
Mallard	51.5	15.9	31.0	27.2	48.8	62.3	58.2
Am. black duck	279.6	104.5	169.7	168.2	60.2	157.1	211.7
Gadwall	0.0	0.0	0.0	3.6	2.7	12.3	12.0
Am. wigeon	0.0	0.0	53.4	40.3	11.4	5.1	34.3
Am. green-winged teal	148.4	33.6	74.3	92.6	20.0	32.1	44.2
Blue-winged teal	0.0	0.0	0.0	24.3	13.8	4.6	23.0
N. shoveler	0.0	0.0	0.0	0.0	4.7	0.0	0.0
N. pintail	0.0	0.0	1.9	13.5	0.0	4.5	2.2
Subtotal	479.5	154.0	330.3	369.7	161.6	278.0	385.6
Divers							
Redhead	0.0	0.0	0.0	1.4	1.4	0.0	0.0
Canvasback	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scaups	0.0	0.0	6.4	19.2	85.6	87.8	114.2
Ring-necked duck	222.4	163.0	107.3	134.8	277.7	113.5	46.5
Goldeneyes	257.6	97.8	539.2	380.4	722.3	802.4	719.9
Bufflehead	0.0	0.0	4.5	7.0	18.7	24.8	26.4
Ruddy Duck	0.0	0.0	0.0	1.3	4.0	5.3	0.0
Subtotal	480.0	260.9	657.4	544.1	1109.7	1033.8	906.9
Miscellaneous							
Oldsquaw	0.0	0.0	14.2	55.8	57.3	36.2	43.7
Eiders	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Scoters	0.0	85.7	98.1	1.0	165.5	167.1	266.6
Mergansers	696.4	113.0	174.4	134.5	232.3	254.6	427.7
Subtotal	696.4	198.7	286.7	191.3	455.0	457.8	738.1
Total Ducks	1655.9	613.6	1274.4	1105.1	1726.4	1769.6	2030.6
Canada Goose	432.0	6.2	93.0	613.4	220.8	393.7	315.0
Am. coot	0.0	0.0	0.0	0.0	0.0	2.1	0.0

* Sampling effort and stratum boundary changes in stratum 69 were implemented beginning survey year, 2000.